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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/373,014	08/11/1999	PING-SHENG TSENG	16503-0021	2128

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EXAMINER

THANGAVELU, KANDASAMY

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 11/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/373,014

Applicant(s)

TSENG ET AL.

Examiner

Kandasamy Thangavelu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-17 is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 8 and 18 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Introduction

1. This communication is in response to the Applicants' communication dated August 11, 1999. Claims 1-20 of the application are pending.

Domestic Priority not Granted

2. Applicants' claim for domestic priority under 35 U.S.C. 120, based on the application 09/144,122 filed on August 31, 199, now U.S. patent 6, 321, 366 is acknowledged. However, the material claimed in the current application is found only in the current application at Page 1, Lines 11 to 13, from Page 3, Line 11 to Page 6, Line 30 and from Page 58, Line 27 to Page 75, Line 11 and so constitutes new material. So the applicant has no basis to claim domestic priority based on the application 09/144,122 and the claim to domestic priority is denied.

Drawings

3. The draft person has objected to the drawings; see a copy of Form PTO-948 for an explanation.

Abstract

4. The abstract is objected to because of the following informalities:

Lines 5-6, "each of these attributes will be discussed in greater detail below" is inappropriate in the abstract. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 5.1 Claims 1-3 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

VCD on-demand method for recording a simulation history for a selected simulation session range and dumping state information into a VCD file for a selected simulation target range, where the simulation target range is within the simulation session range.

- 5.2 Claims 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative elements, such omission

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amounting to a gap between the necessary structural connections. See MPEP

§ 2172.01. The omitted structural cooperative relationships are:

VCD on-demand logic for recording a simulation history for a selected simulation session range and dumping state information into a VCD file for a selected simulation target range, where the simulation target range is within the simulation session range.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

7. Claims 1-4, 7 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by

Parulkar et al. (PA) (U.S. Patent 6,363,509).

7.1 **PA** teaches Method and apparatus for transforming system simulation tests to test patterns for IC testers. Specifically, as per Claim 1, **PA** teaches a method of creating a value change dump (VCD) file for a modeled design on demand (Col 10, Lines 21-28); comprising steps:

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selecting a simulation session range which begins at a simulation time t_0 and ends at a simulation time t_3 (Col 10, Lines 28-33 and Lines 48-52);

selecting a simulation target range which begins at a simulation time t_1 and ends at a simulation time t_2 , wherein the simulation time t_1 is greater than or equal to simulation time t_0 and simulation time t_2 is less than or equal to simulation time t_3 (Col 10, Lines 33-38 and Lines 48-52);

generating a VCD file of the modeled design for the selected simulation target range (Col 10, Lines 33-38 and Lines 48-52); and

accessing the VCD file directly from simulation time t_1 to debug the modeled design (Col 10, Lines 54-56).

7.2 As per Claim 2, **PA** teaches the method of Claim 1. **PA** teaches the method further comprising steps of providing primary inputs to the modeled design for evaluation and recording a simulation history for the simulation session range (Col 10, Lines 28-33).

7.3 As per Claim 3, **PA** teaches the method of Claim 2. **PA** teaches the method further comprising steps of processing the simulation history (Col 10, Lines 54-56); and

evaluating in the modeled design the processed simulation history from simulation time t_0 to simulation time t_2 (Col 10, Lines 28-33).

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7.4 As per Claim 4, **PA** teaches the method of Claim 3. **PA** teaches the step of generating the VCD file further comprises generating evaluated results from the modeled design based on the processed simulation history (Col 10, Lines 54-56); and

saving the evaluated results during the simulation target range into the VCD file (Col 10, Lines 28-48).

7.5 As per Claim 7, **PA** teaches the method of Claim 4. **PA** teaches the recording step includes the step of recording the primary inputs as the simulation history (Col 10, Lines 28-33).

7.6 As per Claim 18, **PA** teaches a VCD on-demand system for providing evaluated information for a selected simulation target range of simulation times, the evaluation occurring in modeled design (Col 10, Lines 21-56); comprising:

first logic for selecting a simulation session range which begins at a simulation time t_0 and ends at a simulation time t_3 (Col 10, Lines 28-33 and Lines 48-52);

second logic selecting a simulation target range which begins at a simulation time t_1 and ends at a simulation time t_2 , wherein the simulation time t_1 is greater than or equal to simulation time t_0 and simulation time t_2 is less than or equal to Simulation time t_3 (Col 10, Lines 33-38 and Lines 48-52);

generation logic for generating a VCD file of the evaluated information for the selected simulation target range (Col 10, Lines 33-38 and Lines 48-52); and

access logic for accessing the VCD file directly from simulation time t_1 to debug the modeled design (Col 10, Lines 54-56).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Parulkar et al. (PA)** (U.S. Patent 6,363,509) in view of **Mizuno et al. (MI)** (U.S. Patent 6,370,494).

10.1 As per Claim 8, **PA** teaches the method of Claim 1. **PA** teaches saving state information of the modeled design at simulation time t0 in a first file (Col 10, Lines 38-40).

RA does not expressly teach saving state information of the modeled design at simulation time t3 in a second file. **MI** teaches saving state information of the modeled design at simulation time t3 in a second file (Col 10, Lines 25-28), as it allows the state information that

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has been backed up to be uploaded, so the simulation can be performed starting from the time t3 for the duration that has been specified. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the method of **PA** with the method of **MI** that included saving state information of the modeled design at simulation time t3 in a second file, as that would allow the state information that had been backed up to be uploaded, so the simulation could be performed starting from the time t3 for the duration that had been specified.

Allowable Subject Matter

11. Claims 5, 6 and 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. Claims 9-17 are allowed.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

The following patents are cited to further show the state of the art with respect to creating value change dump (VCD) and simulation history files.

1. Lin, "Array board interconnect system and method", U.S. Patent 6,421,251, July 2002.

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2. Parulkar et al., "Method and apparatus for transforming system simulation tests to test patterns for IC testers", U.S. Patent 6,363,509, March 2002.

3. Takahashi et al., "Semiconductor integrated circuit evaluation system", U.S. Patent 6,061,283, May 2000.

4. Mizuno et al., "Simulator and computer readable recording medium ... computer realizing the simulator recorded thereon", U.S. Patent 6,370,494, April 2002.


5. Trimberger, "Logic simulator which can maintain, store, and use historical event records ", U.S. Patent 6,173,241, January 2001.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 703-305-0043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska, can be reached on (703) 305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-746-7329.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

K. Thangavelu
Art Unit 2123
November 19, 2002


SAMUEL BRODA, ESQ.
PATENT EXAMINER

Recent Statutory Changes to 35 U.S.C. § 102(e)

On November 2, 2002, President Bush signed the 21st Century Department of Justice Appropriations Authorization Act (H.R. 2215) (Pub. L. 107-273, 116 Stat. 1758 (2002)), which further amended 35 U.S.C. § 102(e), as revised by the American Inventors Protection Act of 1999 (AIPA) (Pub. L. 106-113, 113 Stat. 1501 (1999)). The revised provisions in 35 U.S.C. § 102(e) are completely retroactive and effective immediately for all applications being examined or patents being reexamined. Until all of the Office's automated systems are updated to reflect the revised statute, citation to the revised statute in Office actions is provided by this attachment. This attachment also substitutes for any citation of the text of 35 U.S.C. § 102(e), if made, in the attached Office action.

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 in view of the AIPA and H.R. 2215 that forms the basis for the rejections under this section made in the attached Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 prior to the amendment by the AIPA that forms the basis for the rejections under this section made in the attached Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

For more information on revised 35 U.S.C. § 102(e) visit the USPTO website at www.uspto.gov or call the Office of Patent Legal Administration at (703) 305-1622.